

## REMARKS

Claims 1-51 are pending in the application. Claims 22-30 and 47-51 stand allowed. Claims 1-6, 10-12, 16, 21, 31-33, 37-39, 42 and 46 stand rejected. The Examiner objects to claims 7-9, 13-15, 17-20, 34-36, 40, 41 and 43-45. The drawings are accepted. The Examiner's objections and rejections are addressed below in substantially the same order as in the office action.

### REJECTIONS UNDER 35 USC § 102

Claims 1-6, 10-12, 16, 21, 31-33, 37-39, 42, 46 are rejected under 35 U.S.C. 102 as being anticipated by U.S. 4,744,426 to Reed.

Reed describes "an apparatus positioned above the drill bit for reducing the hydro-static pressure of the column of mud at the bit for producing a more effective drilling by the bit into the rock formation." Reed explains the effect of this device as follows: "Thus the hydro-static head at the bit is reduced providing the drilling weight and increasing the drill rate through lower hydro-static head of the bit." Both in form and in function, the Reed device seeks to reduce pressure at the drill bit to improve the effectiveness of the drill bit. In contrast, embodiments of the present invention are directed to controlling a pressure profile for one or more selected sections of a wellbore.

With respect to amended claims 1 and 31, Reed does not teach or suggest an active pressure differential device that reduces pressure in the annulus around the drill string. Rather, the Reed device reduces pressure at a bottom face of the drill bit. Furthermore, in light of the stated object of improving the drilling effectiveness of the drill bit, Applicant can find no suggestion to modify the Reed device to control pressure in the annulus. Thus, Applicant respectfully submits that claims 1 and 31 are in condition for allowance.

Claims 2-3, 5, 6, 10 and 21 depend from claim 1, a claim believed to be in condition for allowance. Thus, claims 2-3, 5, 6 10 and 21 are believed to be in condition for allowance on at least those grounds.

With respect to claim 4, to Applicant's reading, the pending office action does not expressly identify what aspect of Reed teaches the bypass recited in claim 4. Applicant has reviewed Reed and is unable to identify such a feature. Applicant requests the Examiner to clarify the grounds for rejection of claim 4.

With respect to amended claim 11, Reed does not teach or suggest a controller that is operatively coupled to the APD Device. Thus, Applicant respectfully submits that claim 11 is in condition for allowance.

Claims 12 and 16 depend from claim 11, a claim believed to be in condition for allowance. Thus, claims 12 and 16 are believed to be in condition for allowance on at least those grounds.

Claims 32, 33, 37 and 46 depend from claim 31, a claim believed to be in condition for allowance. Thus, claims 32, 33, 37 and 46 are believed to be in condition for allowance on at least those grounds.

With respect to amended claim 38, Reed does not teach or suggest a controller that is operatively coupled to the APD Device. Thus, Applicant respectfully submits that claim 38 is in condition for allowance.

Claims 39 and 42 depend from claim 38, a claim believed to be in condition for allowance. Thus, claims 39 and 42 are believed to be in condition for allowance on at least those grounds.

#### **CLAIMS ALLOWED AND OBJECTED TO BY THE EXAMINER**

Allowed claims 22 and 47 have been amended to remove reference to the drill bit. Applicant does not believe that the omission of these recitations impact the stated allowability of claims 22 and 47.

Claims 7-9, 13-15, 17-20, 34-36, 40, 41, 43-45 stand objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 7 has been rewritten in independent form. However, the recitations of the drill bit and the drive assembly have not been included in rewritten claim 7. Applicant

does not believe that the omission of these recitations impact the stated allowability of claim 7.

Claim 8 has not been rewritten in independent form because it depends from rewritten claim 7, a claim believed to be in condition for allowance.

Claim 9 has not been rewritten in independent form because it depends from amended claim 1, a claim believed to be in condition for allowance.

Claims 13-15 have not been rewritten in independent form because they depend from amended claim 11, a claim believed to be in condition for allowance.

Claim 17 has been rewritten in independent form. However, the recitations of the drill bit and the drive assembly have not been included in rewritten claim 17. Applicant does not believe that the omission of these recitations impact the stated allowability of claim 17.

Claims 18-19 have not been rewritten in independent form because they depend from rewritten claim 17, a claim believed to be in condition for allowance.

Claim 20 has not been rewritten in independent form because it depends from amended claim 1, a claim believed to be in condition for allowance.

Claim 34 has been rewritten in independent form. However, the recitations of the drill bit and the drive assembly have not been included in rewritten claim 34. Applicant does not believe that the omission of these recitations impact the stated allowability of claim 34.

Claims 35-36 have not been rewritten in independent form because they depend from rewritten claim 34, a claim believed to be in condition for allowance.

Claims 40-41 have not been rewritten in independent form because they depend from amended claim 38, a claim believed to be in condition for allowance.

Claim 43 has been rewritten in independent form. However, the recitations of the drill bit and the drive assembly have not been included in rewritten claim 43. Applicant does not believe that the omission of these recitations impact the stated allowability of claim 43.

Claims 44-45 have not been rewritten in independent form because they depend from rewritten claim 43, a claim believed to be in condition for allowance.

**NEW CLAIMS**

Dependent claims 52 and 53 recite a drive assembly, a recitation that has been removed from the independent claims from which they depend. Dependent claims 54-56 generally recite the subject matter of claim 4. Applicant believes new claims 52-56 are allowable at least because they depend from claims believed to be in condition for allowance.

New claims 57 and 58 recite an APD Device that operates substantially independent of drill bit rotation. In contrast, the Reed device includes a mud motor that rotates a shaft 18 that both rotates the fan 62 and the drill bit 14. Thus, the fans 62 cannot be rotated without rotating the drill bit 14. Because Reed neither teaches or suggests at least the noted recitation of new claims 57 and 58, Applicant believes that these claims are in condition for allowance.

New claims 59 and 60 recite an APD Device control pressure to at least partially offset an equivalent circulating density associated with the flowing drilling fluid. In contrast, the Reed device reduces pressure to below hydrostatic pressure without regard to equivalent circulating density. Because Reed neither teaches or suggests at least the noted recitation of new claims 59 and 60, Applicant believes that these claims are in condition for allowance.

**CONCLUSION**

For all the foregoing reasons, Applicant submits that the application is in a condition for allowance. The Commissioner is hereby authorized to charge any additional fees or credit any overpayment to Deposit Account No. 02-0429 (564-27679-USCP).

Respectfully submitted,

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**CERTIFICATE OF FACSIMILE TRANSMISSION**

I do hereby certify that this correspondence is being transmitted via facsimile, to the Commissioner for Patents, Examiner, Frank Tsay, facsimile no. (571) 273-8300, on this 6th day of April 2006.

  
Margaret A. Pruitt